

UNITED STATES DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

GEOLOGIC MAP OF THE LITTLE HUNTOON VALLEY QUADRANGLE,  
MINERAL COUNTY, NEVADA

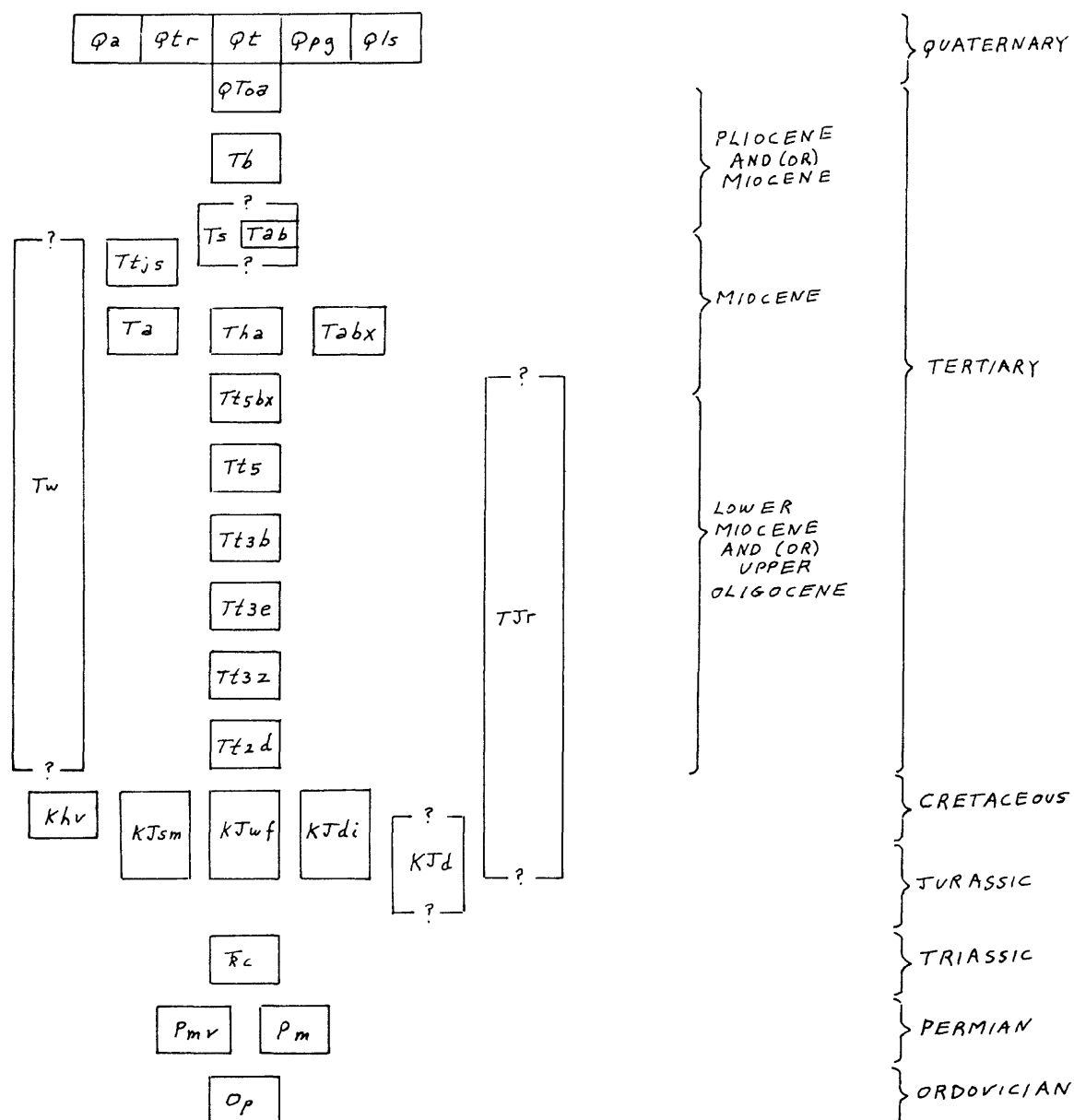
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This map is preliminary and has not been  
reviewed for conformity with U.S. Geological  
Survey editorial standards and stratigraphic  
nomenclature

# CORRELATION OF MAP UNITS -- LITTLE HUNTOON VALLEY



- Contact  
 Fault -- Dashed where inferred or approximately located; dotted where concealed. Bar and ball on downthrown side.  
 Low angle (detachment?) fault, hachures on upper plate  
 Strike and dip of beds  
 Inclined  
 Vertical  
 Overturned. Top of beds can be determined.  
 Arrow indicates localities where top of beds can be determined  
 Strike and dip of foliation

# DESCRIPTION OF MAP UNITS

## LITTLE HUNTOON VALLEY

Qa	ALLUVIAL DEPOSITS
Qtr	SPRING DEPOSITS--Travertine, sand, and alkali salts
Qt	TALUS
Qpg	PEDIMENT GRAVEL
Qls	LANDSLIDE DEPOSITS
QToa	OLDER ALLUVIAL DEPOSITS
Tb	BASALT
Ts	TUFFACEOUS SILTSTONE, SANDSTONE, AND CONGLOMERATE--Includes a volcanic subunit:
Tsab	Andesitic basalt
Tw	WELDED TUFF, UNDIVIDED
Ttjs	TUFF OF JACK SPRING--Ash-flow tuff, crystal rich, not examined petrographically but abundant sanidine and biotite can be identified with hand lens, and Gilbert and others (1968, p. 285) report that calcic oligoclase is also a component in correlative rocks in Huntoon Valley quadrangle to the west. Sparse fine-grained lithic fragments. Dark vitrophyre commonly occurs near base. Correlative rocks in Huntoon Valley quadrangle are 11.1 to 11.7 m.y. old on the basis of K-Ar dating (Gilbert and others, 1968)
Ta	ANDESITE FLOWS OR FLOWS OF INTERMEDIATE COMPOSITION
Tha	HORNBLENDE ANDESITE--Needle-shaped crystals of hornblende as much as 1 cm long in aphanitic matrix
Tabx	ANDESITE BRECCIA (lahar)--Includes some sedimentary rocks
TJr	RHYOLITE--Massive, locally flow banded, phenocrysts of quartz and feldspar in aphanitic matrix; includes some microdiorite west of Jacks Spring Canyon. Probably mainly intrusive
Tt <sub>5</sub> bx	BRECCIA--Probably a tectonic breccia. Composed of fragments, as much as several meters across, of Candelaria Junction Tuff of Speed and Cogbill (1979). Underlain, along a fault contact, by pre-Tertiary rocks and overlain, along a fault contact, by Tt <sub>2</sub> d or Tt <sub>3</sub> z. Relation to andesite breccia (Tabx) uncertain, but breccia (Tt <sub>5</sub> bx) probably older

- Tt<sub>5</sub> CANDELARIA JUNCTION TUFF OF SPEED AND COGBILL (1979)--Ash flow tuff, pale-red to grayish red; 18 percent crystals; plagioclase, sanidine, quartz in approximate proportions 2:2:3; sparse biotite; common flattened pumice; cliff forming: 22 to 24 m.y. old based on K-Ar dating (Speed and Cogbill, 1979). See Speed and Cogbill (1979) and Stewart (1979) for more detailed description.
- Tt<sub>3b</sub> ANDESITE BRECCIA (LAHAR)--Composed of slightly rounded fragment of mafic lava as much as 1 m in diameter set in a fine- to coarse-grained volcanic sand matrix
- Tt<sub>3e</sub> TUFF OF EASTSIDE MINE--Very pale orange to pale yellowish brown; 15 percent crystals; plagioclase, sanidine, and quartz in approximate proportions 6:4:3, sparse biotite and opaque minerals: 5 percent lithic fragments as large as 5 to 8 cm in diameter composed of the following: brown porphyritic lava, aphanitic lava, and sparse Paleozoic rocks. Common pumice. Mostly nonwelded to slightly welded
- Tt<sub>3z</sub> ASH-FLOW TUFF--Very pale orange to gray, crystal-poor, quartz and biotite identified in hand specimen. This tuff apparently does not occur in the Columbus, Miller Mountain, Basalt, Jack Spring, or Teels Marsh quadrangles, but conceivably could occur within poorly studied ash-flow tuff sequences in the central part of the Huntoon Valley quadrangle
- Tt<sub>2d</sub> METALLIC CITY TUFF OF SPEED AND COGBILL (1979)--Ash-flow tuff, dark gray in lower part, light gray in upper part; 25 percent crystals; plagioclase, sanidine, and quartz in approximate proportions 14:3:4; 2.7 percent biotite; sparse hornblende and opaque minerals; 1.6 percent rock fragments; cliff forming; 22 to 24 m.y. old based on K-Ar dating (Gilbert and others, 1968). See Speed and Cogbill (1979) and Stewart (1979) for more detailed description
- Khv GRANODIORITE OF HUNTOON VALLEY--Light- to medium-gray medium- to coarse-grained equigranular to porphyritic hornblende biotite granodiorite. Average mineral composition, in percent: quartz (19), potassium feldspar (17), plagioclase feldspar (49), mafic minerals (15). Distinguished from adjacent plutonic rocks by a gray topsoil and biotite flakes as large as 8 mm across. Sodic andesine (An<sub>32</sub>) crystals are subhedral to euhedral, as long as 4.5 mm, and show normal zoning; cores of some of crystals are sericitized. Myrmekite is uncommon. Microcline and microcline perthite are subhedral and as long as 1 cm. Quartz is as large as 3 mm in diameter. Brown biotite, as much as 8 percent of rock, occurs in cores of hornblende crystals and as individual flakes as large as 8 mm. Green hornblende, as much as 6 percent of rock, and averaging 3 percent is subhedral to euhedral and as long as 3.5 mm. Small amounts of green chlorite occur as distinct flakes or alteration products of biotite. Other minerals observed in small amounts (1 percent or less) include magnetite, sphene, and apatite. K-Ar ages of 86 m.y. (biotite)

and 100 and 101 m.y. (hornblende) were obtained from samples collected in adjacent Rattlesnake Flat and Huntoon Valley quadrangles (Evernden and Kistler, 1970, loc. nos. 238, 239)

- KJsm GRANITE OF SILVER MOON--Medium- to coarse-grained, leucocratic, color index about 3 or less. Composition, in percent, based on one modal analysis: quartz (30), plagioclase (31), potassium feldspar (36), mafic minerals (3)
- KJwf GRANITE OF WHISKEY FLAT--Light-gray to pinkish-gray, medium- to coarse-grained porphyritic biotite granite. Average mineral composition, in percent: quartz (26), potassium feldspar (31), plagioclase feldspar (37), and mafic minerals (6). Rock weathers readily to coarse sandy grus. Oligoclase (An<sub>25</sub>) forms subhedral crystals as long as 4 mm that exhibit weak zoning and uncommon myrmekite intergrowths. Some twin lamellae are noticeably bent. Orthoclase(?)--perthite forms subhedral phenocrysts as long as 15 mm. Quartz crystals are anhedral and as much as 3.5 mm in diameter. Mafic minerals, constituting 2 to 10 percent of rock, include chiefly biotite (as much as 8 percent of rock but averaging 3 percent) and lesser amounts of hornblende. Biotite forms light-brown to brown subhedral crystals as long as 4 mm and is locally chloritized. Muscovite and sericite range in amount from a trace to as much as 8 percent of rock, and their concentration in altered zones indicates a probable secondary origin related to hydrothermal alteration. Opaque minerals constitute as much as 2 percent of rock and include magnetite and hematite. Other minerals, from trace amounts as much as 1 percent of rock, include sphene, apatite, and zircon
- KJdi DIORITE
- KJd DUNLAP FORMATION--Sedimentary rocks consisting of quartz sandstone, quartz-chert-feldspar sandstone, volcanic and chert clast sedimentary breccia, and red mudstone; depositional on Mina Formation(?) (Pmv); probably Cretaceous and/or Jurassic by lithic correlation with similar strata (Dunlap Formation) in the Huntoon Valley quadrangle dated as Early Jurassic (Stewart and others, 1981) and in the eastern Excelsior Mountains dated as mid-Cretaceous (Speed and Kistler, 1980)
- B c CANDELARIA FORMATION--Light-brown, pale-olive-brown, dusky-brown, yellow-brown to greenish-gray siltstone to very fine grained sandstone, micaceous, evenly laminated to very thin bedded. Conspicuous cleavage parallel and in places across bedding. Sandstone is locally quartzitic. Coarse sandstone containing abundant dark-gray chert grains noted as float in one area. Gray chert, in layers from 2.5 to 7.0 cm thick, occurs in one area. Contact with Palmetto Formation at color change from gray and black of Palmetto to brown of Candelaria. In detail, contact is not distinct, and no conglomerate occurs near contact. Strata of the Palmetto Formation appear to be more structurally contorted than those of the Candelaria Formation

Pmv MINA FORMATION(?)--Interbedded volcanogenic sedimentary rocks and volcanic breccia and abundant mafic porphyry intrusions. Sedimentary rocks are mainly mudstone, thin-bedded feldspathic turbidite, and minor medium bedded pyroxene-rich volcanogenic sandstone. Breccia includes monolithologic deposits of coarse- and fine-grained pyroxene porphyry, aphanitic igneous rocks, scoria, and microporphyry; breccias also polymict, containing fragments of porphyry, mudstone, and turbidites in matrices of feldspathic mudstone and crystal tuff; origins of breccias by primary volcanic extrusion, slump, and intrusion. Intrusive rocks are mainly small irregular bodies of pyroxene porphyry. Main differences from Mina Formation are absence of chert, predominance of very fine grained sedimentary rocks and abundance of primary igneous rock; contact with Mina Formation apparently depositional but stratigraphic relations uncertain

Pm MINA FORMATION--Interbedded volcanogenic sedimentary rocks, chert, and igneous breccia; local intrusions of mafic porphyry. Clastic rocks: medium- to thick-bedded massive and plane laminated sandstone consisting of pyroxene, plagioclase, and clasts of feldspar-pyroxene porphyry; thin- to medium-bedded feldspathic turbidite; red mudstone; pebbly volcanogenic sandstone with mudclasts and fragments of porphyry; chert, medium to thick bedded and grainy, and probably of diagenetic rather than biogenic origin. Minor igneous breccia consists of massive deposits of mafic microporphyry and scoria; locally contains mudclasts. Intrusions are small irregular masses and dikes that locally include twisted fragments of sedimentary rocks and that invade wall rocks with structures suggesting emplacement before lithification and dewatering. Age is probably Permian by correlation with dated rocks in eastern Excelsior Mountains (Speed, 1977)

Op PALMETTO FORMATION--Light-gray shale and medium- to dark-gray bedded chert. Sparse yellow-brown fine-grained quartzite that locally contains medium to coarse quartz grains. Unit locally exhibits intense deformation

Locality Fl (see southeast corner of map)--Graptolites, identified by R. J. Ross, Jr., U.S.G.S. Colln. D2963 CO, Field No. 1-60-13J. Fossils in Palmetto Formation, gray chert with light-gray shale. E379, 170m, N4, 222, 350m. Graptolites: Orthograptus quadrimucronatus Hall and Climacograptus sp. (width 1.5 mm; th - 14/10 mm; no proximal ends preserved). Age: Best estimate is zone of O. quadrimucronatus of Berry, generally considered late Caradocian.

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